

STEREOTYPIES in captive animals and ENVIRONMENTAL ENRICHMENT proposals

Sandra Ramos Júdez
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Universitat Autònoma de Barcelona

The aim

The aim of this review is to **define stereotypic behaviour** and specifically **motor stereotypes**, examine their **causes** and the role that captive environment plays in the development of these behaviours. It also discusses if it is a **welfare problem** and then considering the treatment of stereotypic behaviours with six forms of **environmental enrichment**.

1 Defining stereotypic behaviour

“An abnormal behaviour pattern, repetitive, invariant with no apparent goal or function”¹

Not all stereotypes are like this

“A repetitive behaviour induced by frustration, repeated attempts to cope with environment and/or C.N.S. dysfunction”²

It focuses on the causes of repetition

2 Types of stereotypic patterns



Oral stereotypes

Motor stereotypes

Non-locomotory stereotypes

Body-rocking
Head-rolling
Head-flicking
Head-weaving
Leg-winging

Locomotory stereotypes

Pacing
Repetitive jumping
Somersaulting

3 Causes of stereotypic behaviour

Internal stimuli:

- The motivation to perform behaviour
- To cope with **stress** and frustration
- A genetic component

External stimuli:

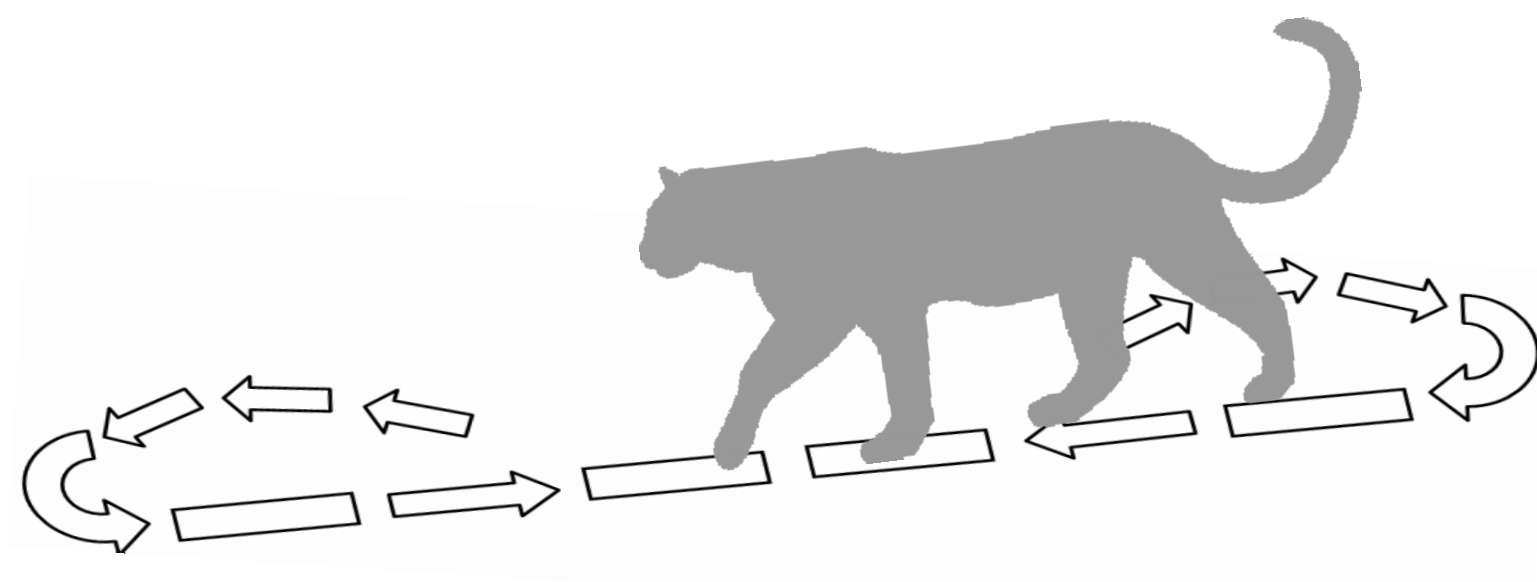
- Social influence or social learning

Memory:

- Adverse childhood or past conditions

Changes in
C.N.S.
(Central Nervous System)

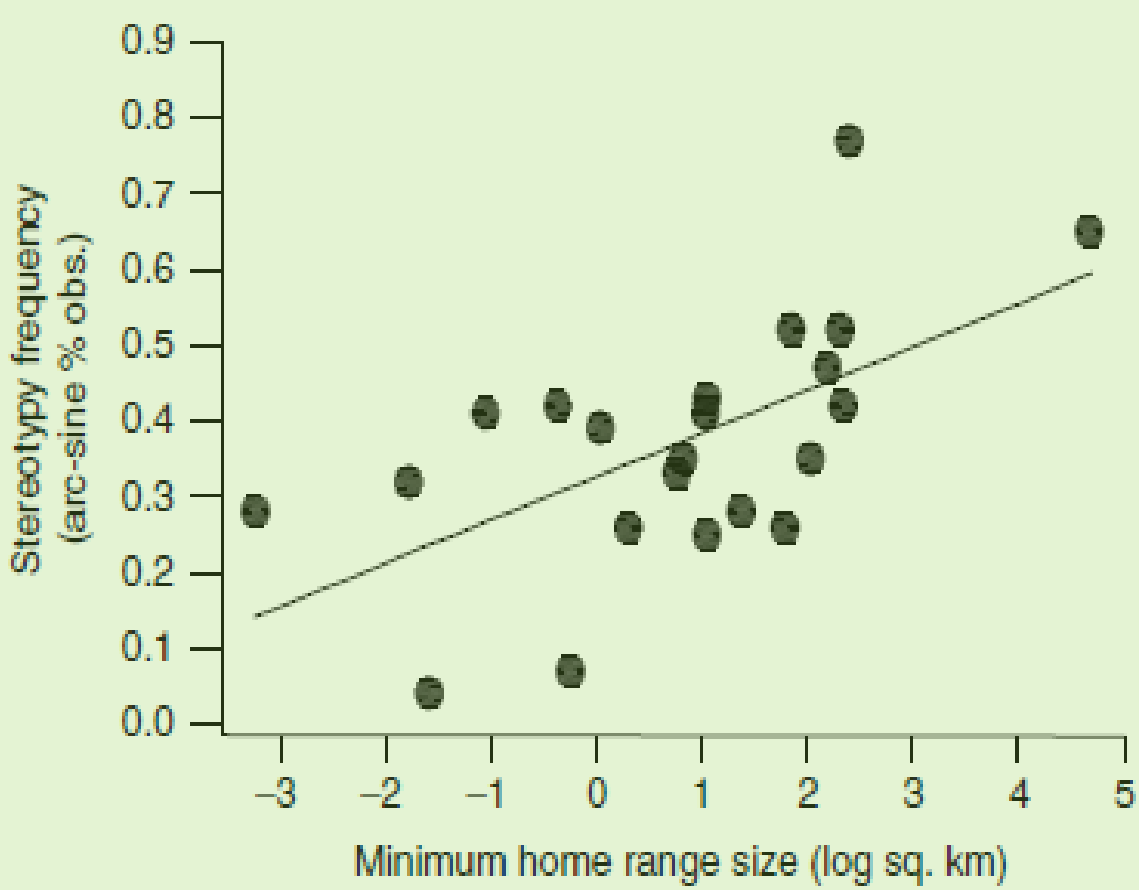
Behavioural responses as
stereotypes



WHAT SOURCES OF **STRESS** THAT CAN PRODUCE STEREOTYPIES CAN WE FIND IN A CAPTIVE ENVIRONMENT?

1) Lack of retreat space and enclosure size

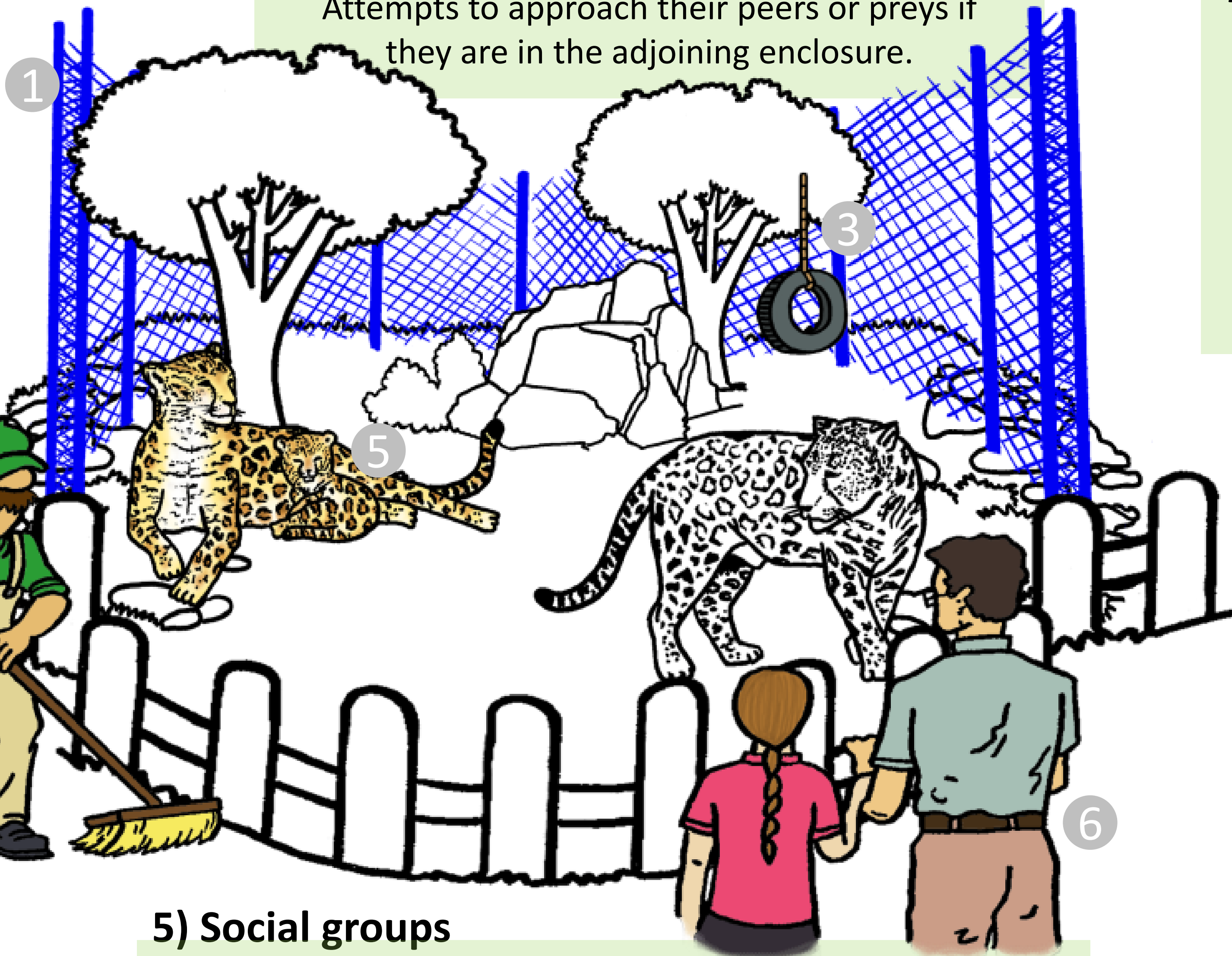
Stereotypes occur often when animals reach the age of natural dispersion or matchmaking, as they don't have the opportunity to do that or from movements trying to escape from these restrictive conditions.



Relationship between frequencies of stereotypes with the size of carnivorous species home range (measured in minimum distances) (Clubb and Vickery, 2006a)

2) Location of the enclosure in the centre

Attempts to approach their peers or preys if they are in the adjoining enclosure.



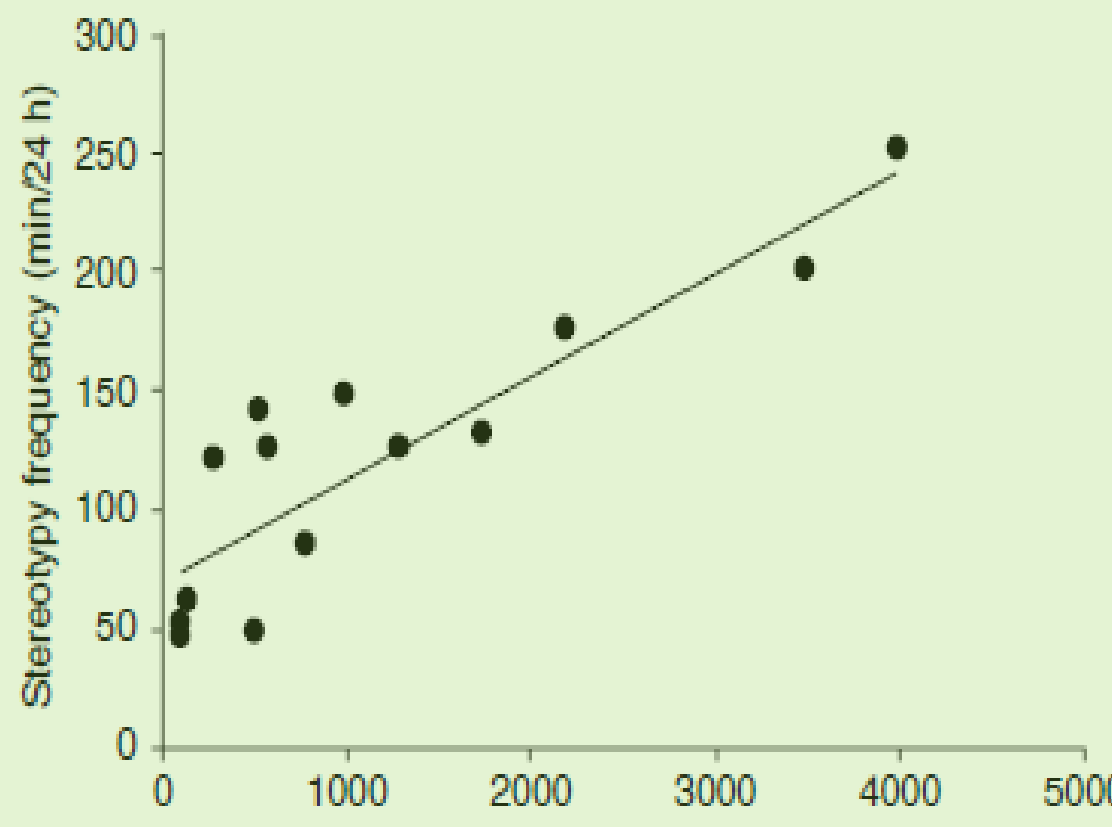
3) Complexity of the enclosure

It is more important than its size.

- *Unstimulating environment*
That leaves the animals bored and/or frustrated.
- *Irregular induction of enrichment*
The introduction of new devices can also cause neophobia.

6) Sound

Exposure to constant noises such as from the machinery used, cleaning the enclosures and visitors can generate stress.



Total relationship pacing frequency in a pair of fennec foxes during periods with varying visitors numbers, as measured by the number of car-parking receipts (Clubb and Vickery, 2006a)

4) Management of animals

- Contact with the cleaning staff and keepers.
- The cleaning of the enclosure interferes with the scents used as territorial markers.
- Increase the intensity of breeding by keepers.
- The feeding regime the animals are exposed to.

5) Social groups

- Groups that do not occur in nature, such as keeping solitary animals in groups or vice versa.
- The forced links between individuals chosen by people.
- High number of individuals in the same enclosure.
- Maternal deprivation.

4 Welfare concerns

Those individuals who perform stereotypes in suboptimal environments to cope with minor stress

Stereotypes for 5% of active time

Direct physical damage or health problems by doing stereotypes

Stereotypes for 42% of active time

WELFARE INDICATOR

Measured by the absence of indicators of pain, stress, or precursors of disease and by knowing the behavioural needs of animals.

Conclusion

Captive wildlife institutes are likely to continue for different purposes, as doing research, reintroduction, or educating the public about animals. However, the well-being of captive animals must be paramount, adapting the environment to their needs and controlling the presence of stereotypes only by environmental enrichment. Nevertheless, we must consider the potential problems that may arise in animals living in suboptimal environments because even they don't show stereotypes, may have the worst welfare.

5 Tackle it with environmental enrichment

the most appropriate solution!



Physical enrichment

Modify the structure of the enclosure and the surrounding area



Food enrichment

Change the method of delivery of food to take longer to consume



Occupational enrichment

The use of natural or unnatural objects to encourage certain responses



Sensory Enrichment

Introduce of odours, sounds, visual or tactile stimuli into the enclosure



Cognitive enrichment

Provide unresolved problems to increase mental stimulation



Social enrichment

The formation of intra- or inter-specific groups, and the promotion of human contact

¹ Mason, G. (1991) Stereotypes: a critical review. *Animal Behaviour*, 41: 1015-1037.

² Mason, G. J., Clubb, R., Latham, N.R. and Vickery, S. (2007) Why and how should we use environmental enrichment to tackle stereotypic behaviour? *Animal Behaviour Science*, 102: 163-188.

³ Clubb, R. and Vickery, S. (2006a) Locomotory Stereotypes in Carnivores: Does Pacing Stem from Hunting, Ranging or Frustrated Escape? In: Mason, G.J., Rushen, J., B. Ginko100 CC BY-SA 3.0

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